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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,172	07/09/2001	Yukihiro Nakano	210840US0	5400

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EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

DATE MAILED: 07/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/900,172

Applicant(s)

NAKANO ET AL.

Examiner

Callie E. Shosho

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-- **Th MAILING DATE** of this communication appears on the cover sheet with the corresponding address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 7-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-42 is/are allowed.
- 6) ☒ Claim(s) 7-10, 13-19, 21, 22 and 26-29 is/are rejected.
- 7) ☒ Claim(s) 11-12, 20, and 23-25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

1. All outstanding rejections are overcome by applicants' amendment filed 5/6/03, Paper No. 9.

The following action is non-final in light of the new grounds of rejection as set forth below with respect to Tsutsumi et al. (U.S. 5,852,074) and EP 1088863.

**Claim Rejections - 35 USC § 103**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 7, 9-10, 14-19, 21-22, and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1088863 in view of Suzuki et al. (U.S. 6,153,001).

EP 1088863 disclose water-based ink comprising pigment, resin encapsulating a colorant wherein the resin is obtained from cationic monomer and is neutralized with polybasic acid, and cationic polymer which is neutralized with acetic acid. The resin encapsulating colorant has particle size of 0.05-1  $\mu\text{m}$  and contains, for instance, 10% colorant. The ink has pH of 3.5-8 (page 5, lines 10-21 and 56-57, page 6, lines 12-13 and 56-58, page 7, lines 1-10, page 9, lines 34-45, page 10, lines 19-20 and 44, and page 19, lines 20-25).

The difference between EP 1088863 and the present claimed invention is the requirement in the claims of specific type of polybasic acid.

Suzuki et al., which is drawn to ink jet ink, disclose the use of polybasic acid such as malonic acid (col.13, lines 8-11). Suzuki et al. also disclose the equivalence and

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interchangeability of polybasic acid such as sulfuric acid, as disclosed by EP 1088863, with malonic acid as presently claimed.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use malonic acid in the ink of EP 1088863, and thereby arrive at the claimed invention.

4. Claims 7, 10, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shintani et al. (U.S. 4,623,689) in view of Suzuki et al. (U.S. 6,153,001) and Ohta et al. (U.S. 6,211,265).

Shintani et al. disclose aqueous ink comprising colored polymer emulsion or solution wherein the polymer is obtained from anionic and/or cationic monomers and pH adjustor including polybasic acid. The ink had pH of 2-7 (col.2, lines 44-46, col.2, line 65-col.3, line 17, and col.8, lines 6-13 and 62-68).

The difference between Shintani et al. and the present claimed invention is the requirement in the claims of (a) specific type of polybasic acid and (b) monovalent acid.

With respect to difference (a), Suzuki et al., which is drawn to ink jet ink, disclose the use of pH adjustor such as malonic acid (col.13, lines 8-11). Suzuki et al. also disclose the equivalence and interchangeability of pH adjustor such as sulfuric acid, as disclosed by Shintani et al. with malonic acid as presently claimed.

With respect to difference (b), Ohta et al., which is drawn to ink jet ink, disclose adjusting the pH of the ink to proper range using monovalent acid such as acetic acid and propionic acid (col.8, lines 11-27).

In light of the motivation for using specific polybasic acid disclosed by Suzuki et al. as described above and in light of the motivation for using monovalent acid disclosed by Ohta et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such acids in the ink of Shintani et al. in order to produce ink with proper pH, and thereby arrive at the claimed invention.

5. Claims 7-8, 10, 13-14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsumi et al. (U.S. 5,852,074) in view of Suzuki et al. (U.S. 6,153,001) and Ohta et al. (U.S. 6,211,265).

Tsutsumi et al. disclose water-based ink jet ink comprising 1-50% vinyl polymer aqueous dispersion in which hydrophobic dye is contained and wherein the polymer is neutralized with polybasic acid. The vinyl polymer is obtained from macromer, salt-forming monomer including ionic monomer, and monomer copolymerizable with macromer and salt-forming monomer while the aqueous dispersion of the vinyl polymer containing the hydrophobic dye has particle size of 0.01-0.5  $\mu\text{m}$ . The pH of the ink is weakly acidic to neutral. It is disclosed that the vinyl polymer aqueous dispersion in which hydrophobic dye is contained possesses 100 parts solvent, 5-50 parts polymer and 0.1-50 parts dye from which it is calculated that the dispersion comprises approximately 3-33% polymer and 0.06-33% dye (col.1, line 65-col.2, line 3, col.2, lines 8-31, col.8, lines 58-61, col.8, line 66-col.9, line 3, and col.9, lines 14-16).

The difference between Tsutsumi et al. and the present claimed invention is the requirement in the claims of (a) specific type of polybasic acid and (b) monovalent acid.

With respect to difference (a), Suzuki et al., which is drawn to ink jet ink, disclose the use of pH adjustor such as malonic acid (col.13, lines 8-11). Suzuki et al. also disclose the equivalence and interchangeability of pH adjustor such as sulfuric acid, as disclosed by Tsutsumi et al. with malonic acid as presently claimed.

With respect to difference (b), Ohta et al., which is drawn to ink jet ink, disclose adjusting the pH of the ink to proper range using monovalent acid such as acetic acid and propionic acid (col.8, lines 11-27).

In light of the motivation for using specific polybasic acid disclosed by Suzuki et al. as described above and in light of the motivation for using monovalent acid disclosed by Ohta et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such acids in the ink of Tsutsumi et al. in order to produce ink with proper pH, and thereby arrive at the claimed invention.

#### **Response to Arguments**

6. Applicants' arguments regarding Ma (U.S. 5,271,765), Parazak (U.S. 6,281,267), EP 909798, EP 719846, and Prasad (U.S. 5,529,616) have been considered but they are moot in view of the discontinuation of these references against the present claims.

7. Applicants' arguments filed 5/6/03 have been fully considered but, with the exception of arguments relating to Ma, Parazak, EP 909798, EP 719846, and Prasad, they are not persuasive.

Specifically, applicants argue that:

(a) EP 1088863, Shintani et al., and Tsutsumi et al. each do not disclose polybasic acid as presently claimed.

(b) Shintani et al., Suzuki et al., and Ohta et al. each do not disclose water-insoluble particles comprising polymer and coloring agent as presently claimed.

(c) Shintani et al. and Tsutsumi et al. each do not disclose monovalent acid as presently claimed.

With respect to difference (a), it is agreed that neither EP 1088863, Shintani et al., or Tsutsumi et al. disclose polybasic acid as presently claimed, which is why each reference is used in combination with Suzuki et al., which is also drawn to ink jet inks and discloses the equivalence and interchangeability of the polybasic acid disclosed by either EP 1088863, Shintani et al., or Tsutsumi et al. with the specific polybasic acid presently claimed.

With respect to difference (b), attention is drawn to col.8, lines 19-22 of Shintani et al. which discloses the use of water-insoluble colored polymer as presently claimed.

With respect to Suzuki et al. and Ohta et al., it is agreed that neither reference discloses water-insoluble particles comprising polymer and coloring agent as presently claimed. However, note that Suzuki et al. and Ohta et al. are used as teaching references, and therefore, it is not necessary for these secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather these references teach a certain concept, namely the use of specific acids in ink jet ink, and in combination with the primary reference, discloses

the presently claimed invention. If the secondary reference contained all the features of the present claimed invention, it would be identical to the present claimed invention, and there would be no need for secondary references.

With respect to argument (c), applicants argue that neither Shintani et al. nor Tsutsumi et al. disclose the use of monovalent acid and thus, neither reference discloses that the combination of polybasic acid and monovalent salt improves dispersion stability as set forth in the present invention.

It is agreed that neither Shintani et al. or Tsutsumi et al. disclose the use of monovalent acid which is why each reference is used in combination with Ohta et al. which is also drawn to ink jet inks and discloses the use of monovalent acid as presently claimed. Although there is no disclosure in either Shintani et al., Tsutsumi et al., or Ohta et al. that the combination of polybasic acid and monovalent salt improves dispersion stability, given that Shintani et al. or Tsutsumi et al. in view of Ohta et al. discloses combination of polybasic acid and monovalent acid as presently claimed, it is clear that the inks of either Shintani et al. or Tsutsumi et al. would therefore intrinsically display improved dispersion stability.

**Allowable Subject Matter**

8. Claims 30-42 are allowed over the "closest" prior art EP 1088863, Shintani et al. (U.S. 4,623,689), Suzuki et al. (U.S. 6,153,001), Tsutsumi et al. (U.S. 5,852,074), and Ohta et al. (U.S. 6,211,265) given that none of the references discloses or suggests the use of polybasic acid



which is either polyethylene oxide dicarboxylic acid or glycerol dicarboxylic acid as required in all of claims 30-43.

9. Claims 11, 12, 20, and 23-25 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 11, 12, 20, and 23-25 would be allowable over the "closest" prior art if rewritten in independent form including all of the limitations of the base claim and any intervening claims for the following reasons.

EP 1088863 discloses water-based ink comprising pigment, resin encapsulating a colorant wherein the resin is obtained from cationic monomer and is neutralized with polybasic acid, and cationic polymer that is neutralized with acetic acid. The resin encapsulating colorant has particle size of 0.005-1 mm and contains, for instance, 10% colorant. However, there is no disclosure or suggestion of polybasic acid which is either polyethylene oxide dicarboxylic acid or glycerol dicarboxylic acid as required in claims 11-12 and 23-24. Further, there is no disclosure of the amount of cationic polymer present in the resin encapsulating colorant as required in present claim 25 and no disclosure or suggestion that the cationic polymer is obtained by copolymerizing mixture of (a) monomer having a salt-forming group, (b) macromer, and (c) monomer copolymerizable with monomers (a) and (b) as required in present claim 20.

Shintani et al. disclose (U.S. 4,623,689) disclose aqueous ink comprising colored polymer emulsion or solution wherein the polymer is obtained from anionic and/or cationic monomers and pH adjustor including polybasic acid. However, there is no disclosure or

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suggestion of polybasic acid which is either polyethylene oxide dicarboxylic acid or glycerol dicarboxylic acid as required in claims 11-12 and 23-24. Further, there is no disclosure pigment as required in present claims 20 and 25 as well as no disclosure or suggestion that the cationic polymer is obtained by copolymerizing mixture of (a) monomer having a salt-forming group, (b) macromer, and (c) monomer copolymerizable with monomers (a) and (b) as required in present claim 20.

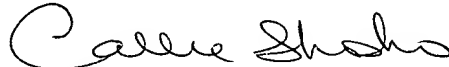
Tsutsumi et al. (U.S. 5,852,074) disclose water-based ink jet ink comprising 1-50% vinyl polymer aqueous dispersion in which hydrophobic dye is contained and wherein the polymer is neutralized with polybasic acid. The vinyl polymer is obtained from macromer, salt-forming monomer including ionic monomer, and monomer copolymerizable with macromer and salt-forming monomer. However, there is no disclosure or suggestion of polybasic acid which is either polyethylene oxide dicarboxylic acid or glycerol dicarboxylic acid as required in claims 11-12 and 23-24. Further, there is no disclosure pigment as required in present claims 20 and 25.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

A handwritten signature in cursive script, reading "Callie Shosho".

Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS

July 23, 2003